RESET - SKYRAD Datalogger Installation

I. Purpose:

This procedure describes the steps necessary for installing the SKYRAD datalogger.

II. Cautions and Hazards:

- A high quality ground must be connected to the data logger case before continuing with the rest of the procedure. If the data logger does not have a good ground reference, a significant offset on the A/D measurements will occur.

III. Requirements:

- A RAD data logger.
- The following Sensors:

  Eppley Pyrgeometers
  Eppley Pyranometers
  Eppley Pyroheliometer
  Heinmann Ingra-Red Thermometer
  Solar Light UVBiometer

- Calibration report for each sensor.
- Notebook PC with RS232/EIA422/Impulse adapter cable.
- Checkout equipment (as specified by Sensor Mentors).

IV. Procedure:

1. Connect power to the data logger.
2. Using the RS232/EIA422/Impulse adapter, connect a notebook computer to the data logger.
3. Verify that the ZENO has the proper version of the SKYRAD Configuration or upload the proper version of the SKYRAD Configuration into the ZENO. . The naming convention for the configuration file is “SKYsssn.txt,” where “sss” is the three-digit serial number of the data logger and n is an alphabetic version number, e.g. “SKY301a.txt” is the first SKYRAD configuration version for data logger serial number 301.
4. Connect the sensors to the data logger. Refer to the SKYRAD SENSOR CONFIGURATION TABLE below.

5. Use a digital voltmeter to measure the input power voltage. If necessary, adjust the calibration factor in the Sensor Menu (Sensor 13) to obtain the proper external battery voltage reading. The latter can be viewed by selecting the Scaled Sensor Data option from the ZENO Test Menu.
6. Check the calibration coefficients for the sensors into the ZENO configuration. The SKYRAD SENSOR CONFIGURATION TABLE is given below.
7. Follow any procedures given by the Sensor/Instrument Mentors.
8. Verify that the ZENO is measuring all signals properly by using the Test Menu and Output Message.
9. Verify that the ZENO is logging data using the Data Retrieval Menu.
10. If any change is made in the software configuration, e.g. a different calibration for a sensor, update the Configuration Version Number in the logger.
11. Save the Configuration to EEPROM.
12. If there has been any change in the software configuration, download the current configuration to the notebook computer using the naming convention given in step 4 above.
13. Disconnect the notebook computer and connect the logger to ADaM.
14. Download the current ZENO configuration file to ADaM.
15. Record the date, start-time, end-time, and any comments in the site operations log.
16. Enter a table of the serial numbers and calibratons for the sensors connected to the SKYRAD data logger into the appropriate log book.
17. Send a copy or a listing of the sensor serial numbers and the configuration file to the data logger mentor.

V. References:

1. Dick Hart.

VI. Attachments

1. SKYRAD Sensor Configuration Table.

Attachment 1. SKYRAD SENSOR CONFIGURATION TABLE

When installing or changing the following sensors or instruments, the calibration coefficients need to be written into the appropriate ZENO Sensor Menu. The offsets in the Sensor Menu and the values of the fixed resistors in the Process Menu for the PIR thermistors should only be changed as a result of a data logger calibration using 0.1% precision resistors.

Sensor or Instrument	Designation	Sensor Menu No.	Connector No.
Global Pyrgeometer	PIRG	1	2
Diffuse Pyrgeometer	PIRD	2	6
Global Pyranometer	PSPG	3	1
Diffuse Pyranometer	PSPD	4	5
Pyroheliometer	NIP	5	7
Infra-Red Thermometer	IRT-UP	6	3
UVB Temperature	UVB-T	7	4
UVB Signal	UVB-UV	8	4